

indicated that Claims 3 - 8 were "objected to" as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

As an overview to the present reply, Applicant has extensively amended the original claim language in the form of new Claims 11 - 19. New Claims 11 - 19 reflect the limitations found in previous claims 1 - 9, respectively, but express such limitations in a more proper U.S. format, including proper antecedent bases and proper structural interrelationships throughout. Any indefinite terminology found in the original claim language has been corrected herein.

With respect to the rejection of the original claims based upon the Dial and Washbourne patents, Applicant notes that the Dial patent fails to teach that the number of measuring points is much larger than the number of searched parameters. The Dial patent also fails to indicate that the common objective consists of a Chebychev objective which is multiplied with one free adjustable weighing parameter and jointed with a least-squares objective which is multiplied with a free adjustable weighing parameter. The Washbourne patent teaches the use of at least one continuous analytical function in the form of a Chebychev polynomial.

Despite their name, the Chebychev polynomials have practically nothing in common with the Chebychev objective (including Chebychev algorithms, Chebychev method as a Monte-Carlo method, Simplex-method, or so called Lp approximation). The Chebychev objective is used in the evaluation of best fit methods in the Coordinate Measuring Machine (CMM) technique. The Chebychev objective and the meaning are described on the original application on page 4.

With Chebychev polynomials, it is not possible to evaluate the standard geometrical elements, such as straight lines, circles, ellipses, cylinders, planes, spheres, cones or toruses, with free orientation in the three-dimensional space. The method described by Washbourne is not

applicable to the field of geometry control on Coordinate Measuring Machines in automotive and machinery building industries, and in plastic forming. These are the intended fields of the present invention. The Washbourne patent does not mention the least-squares objective in the same manner as that of the present invention. There is certainly no mention of such a technique in the Washbourne patent in any form. The Washbourne patent also fails to teach a Chebychev objective which is multiplied with one free adjustable weighing parameter and jointed with a least-squares objective which is multiplied with another free-adjustable weighing parameter. The Washbourne patent teaches that the weighted distributions of coefficients in the Chebychev polynomials is highly advantageous as a direct means of controlling the shape or smoothness of the surfaces defined by the functions. By manipulating the weights of the higher order terms (the quadratic and cubic terms involving second and third powers in x and y), the degree of topology in the surfaces may be controlled. Such teachings have nothing in common with that of the present application in which the free adjustable parameter of the Chebychev weighing parameter of the Chebychev objective is jointed with a least-squares objective which is multiplied with another free adjustable weighing parameter. As such, Applicant respectfully contends that the combination of the Dial and Washbourne patents fail to show the steps of the present invention, as described by independent Claim 11.

With respect to independent Claim 12, Applicant repeats the previous arguments with respect to independent Claim 1. Additionally, neither the Dial patent nor the Washbourne patent suggests the possibility of using the drawings or connecting conditions between the surfaces with its tolerances in accordance with the drawing. Neither the Dial nor Washbourne patents teach or suggest the combination of an integral evaluation method for a complete numerical gauging of the

work pieces or parts of work pieces composed of several standard geometrical elements with free orientation and three-dimensional space for which the number of measuring points for each element is much greater than the number from the search parameters for that element. Neither the Dial nor Washbourne patents describe, in any way, the steps or ordering of the steps as presented in independent Claim 12. As such, it is not possible to use the method described in either the Dial or the Washbourne patents for a complete numerical gauging of the work pieces or parts of the work pieces within the tolerance ranges of the connection conditions according to the drawings.

Applicant has revised the Abstract so as to be of less than 150 words. The language in the Abstract reflects the language found in independent Claim 12.

Applicant notes that dependent Claims 13 - 19 correspond, respectively, previous dependent Claims 3 - 9. Applicant has cancelled Claim 10 herein in view of the indefinite terminology used therein.

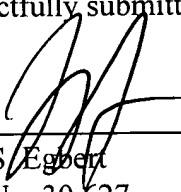
Based upon the foregoing analysis, Applicant contends that independent Claims 11 and 12 are now in proper condition for allowance. Additionally, those claims which are dependent upon these independent claims should also be in condition for allowance. Reconsideration of the

rejections and allowance of the claims at an early date is earnestly solicited. Since no new claims have been added above those originally paid for, no additional fee is required.

Respectfully submitted,

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